

REMARKS

The Office Action of August 28, 2002 has been fully considered. In view of the above amendments and the following remarks, reexamination and reconsideration of the application are respectfully requested.

Applicants submit the above amendments do not add new matter as support for the amendments may be found in the specification as originally filed. Specifically, support for the amendments to claims 1, 14, and 20 may be found on page 7, lines 3-5, which state the preferred tubes have an alumina content of about 99.99% alumina. Support for the additional amendment to claim 20 may be found on page 9, lines 7-10. Claims 4 and 17 have been amended to remove dependency from cancelled claims.

The Examiner rejected claims 1-16 and 19 under 35 U.S.C. § 103(a) as being unpatentable over Prochazka in view of Scott, Jr. '743. Applicants respectfully traverse.

Prochazka is directed to the formation of optically translucent ceramic bodies. The ceramic body of Prochazka consists of mullite, which is from about 72.5 wt% to about 76.5 wt% alumina, with the balance being SiO₂ (column 1, lines 57). The present invention claims a translucent ceramic body including about 99.99% alumina. The alumina content of the present invention is significantly greater than the alumina content of Prochazka. Therefore, even if the molten inorganic flux of Scott Jr. were brought into contact with the body of Prochazka, the resultant body would be distinct from the body of the present invention. Applicants submit it would thus not be obvious to one of ordinary skill in the art to combine the disclosure of Scott, Jr. with Prochazka to achieve the ceramic body of the present invention, as that combination would not achieve the ceramic body of the present invention.

Moreover, if such a combination were obvious, as suggested by the Examiner, Prochazka certainly would have utilized the inorganic flux of Scott, Jr. to achieve improved optical transmittance. The disclosure of Scott, Jr. was available at the time of Prochazka's invention, and if obvious, Prochazka certainly would have utilized the flux.

The Examiner rejected claims 17 and 18 under 35 U.S.C. §103(a) as being unpatentable over Prochazka et Al. in view of Scott, Jr. '743, and further in view of Rhodes and Curtis Scott.

Applicants respectfully submit that the previous discussion regarding the distinction between the Prochazka invention and the ceramic body of the present invention, i.e.,

alumina content, applies to the rejection of claims 17 and 18 over Prochazka in view of Scott, Jr. Thus, Applicants submit claims 17 and 18 are not obvious over Prochazka in view of Scott, Jr.

As to the rejection of claims 17 and 18 over Prochazka in view of Scott, Jr. and further in view of Rhodes and C. Scott, Applicants respectfully submit the claims are not obvious. Rhodes is directed to an yttria-based body (column 1, lines 50-53) distinct from the body including the desired alumina content of the present invention. It would thus not be obvious to include the magnesia of the yttria-based body of Rhodes in the mullite-based body of Prochazka, then bring that body into contact with the inorganic flux of Scott, Jr. to achieve the body of the present invention, especially considering that such a combination would not result in the body of the present invention.

The Examiner has not provided a patent reference number for the C. Scott rejection. Based upon the reference to "column 4, lines 6-10" in the Office Action, Applicants believe the referenced patent is U.S. Patent Number 6,294,871 B1 and base their response to the rejection on that patent. The '871 patent is directed to a UV-attenuating discharge vessel for an arc discharge lamp. The vessel includes an arc tube body constructed from a ceramic material doped with a UV-attenuating additive. Applicants respectfully submit it would not have been obvious to one of ordinary skill to include the magnesia of '821 while simultaneously excluding the UV-attenuating additive of '871 from the mullite-based body of Prochazka, then bring the resultant body into contact with the inorganic flux of Scott, Jr. to achieve the body of the present invention, especially considering that such a combination would not have resulted in the body of the present invention due to the distinctly different alumina content of the Prochazka body and the body of the present invention.

Applicants thus respectfully request the rejection of claims 17 and 18 over Prochazka in view of Scott, Jr. and further in view of Rhodes and '871 be withdrawn.

The Examiner rejected claim 20 under 35 U.S.C. § 103(a) as being unpatentable over Scott, Jr. (4,690,727) in view of Prochazka. Applicants first note that Scott, Jr. is not an inventor of U.S. Patent Number 4,690,727. The inventor of U.S. Patent Number 4,690,727 is C. Scott. Applicants believe the Examiner's rejection is based on U.S. Patent Number 4,690,727, and not on U.S. Patent Number 4,033,743, on which Scott, Jr. is an inventor, and the response is thus based on the content of the '727 patent.


Applicants respectfully traverse the rejection of claim 20 under 35 U.S.C. § 103(a) as being unpatentable over '727 in view of Prochazka. The polishing method of the '727 patent is a glaze polishing method. The claimed method of claim 20 requires immersion of the body into a molten inorganic flux. The polishing methods are thus patentably distinct, and it would not have been obvious to alter the polishing method of '727 to the distinct immersion technique of the present invention, then use the densifying process of Prochazka, which is directed to mullite, to achieve the lamp of claim 20. Applicants respectfully request this rejection be withdrawn.

Applicants respectfully request, in view of the multiple rejections in view of C. Scott and Scott, Jr. and the unclear references in the Office Action to the differing inventors and patent numbers, that if the response to any rejection is based on the wrong reference, consideration be given and any resulting rejections due to the confusion be Non-Final in nature.

In view of the above, Applicants submit the present application is in condition for allowance and respectfully request the rejections be withdrawn. Early notice to that effect is requested.

If any additional fees are due in relation to this response, Applicants authorize deduction of that fee from Deposit Account Number 06-0308.

Respectfully Submitted,
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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Claims:

1. A method of providing a translucent ceramic body with increased in-line optical transmission comprising:
 - (a) densifying a ceramic body to form a substantially translucent ceramic body, the densifying process including heating the ceramic body under a pressure of at least 350 kg/sq.cm, wherein the ceramic body includes about 99.9% alumina; and
 - (b) physically contacting a major surface of the substantially translucent ceramic body with a molten inorganic flux, which includes an alkali metal borate capable of dissolving the ceramic, at elevated temperatures and for a time period sufficient to improve transmittance of the ceramic body.
5. The method of claim [2] 3, wherein the step of densifying includes:
during heating, subjecting the ceramic body to a pressure of at least about 700 kg/sq.cm.
14. An optically transparent densified, sintered polycrystalline ceramic body having a major surface treated with a process comprising:
 - heating a ceramic body in an inert atmosphere a pressure of at least 350 kg/sq.cm for a sufficient time to form a substantially translucent polycrystalline ceramic body, wherein the ceramic body includes about 99.9% alumina; and
 - physically contacting a major surface of the substantially translucent ceramic body with a molten inorganic flux which includes an alkali metal borate capable of dissolving the ceramic at elevated temperatures and for a time period sufficient to improve light transmittance by the ceramic body.
17. The optically transparent sintered polycrystalline alumina body of claim [15] 14, wherein the ceramic body [comprises high purity alumina containing of] further includes up to about 0.5 weight percent magnesia.

20. A high intensity electric discharge lamp comprising:

a discharge vessel which defines a chamber, the discharge vessel being constructed from a polycrystalline material including about 99.9% alumina, which has been densified by applying sufficient pressure and temperature to reduce pores in the vessel and polished by [physically contacting] immersing a major surface of the substantially translucent vessel [with] in a molten inorganic flux at elevated temperatures and for a time period sufficient to reduce unevenness in the major surface;

electrodes sealed into ends of the chamber; and

a fill sealed within the chamber, the fill including a ionizable medium for initiating and sustaining a discharge.